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February 4, 2003

Ms. Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12th Street SW  
Washington DC 20554

**Re: ET Docket No. 98-153, Ultra-Wideband Transmission Systems**  
***Ex parte Communication***

On behalf of XtremeSpectrum, Inc. and pursuant to Section 1.1206(b)(2) of the Commission's Rules, I am electronically filing this notice of an oral *ex parte* communication.

Yesterday, Roni Haggart of XtremeSpectrum, Michele Farquhar of Hogan & Hartson LLP, and I met separately with Paul Margie of Commissioner Copps's office, Barry Ohlson of Commissioner Adelstein's office, and Sam Feder of Commissioner Martin's office. At each meeting we urged the Commission to maintain, without change, the rules set out in the First Report and Order that govern ultra-wideband communications systems.

A copy of our presentation outline is attached.

If there are any questions about this filing, please call me at the number above.

Respectfully submitted,

Mitchell Lazarus  
Counsel for XtremeSpectrum, Inc.

cc: Meeting Participants

**XtremeSpectrum, Inc.**  
**Responds to**  
**Petitions for Reconsideration in**  
**ET Docket No. 98-153**  
***(Ultra-Wideband Transmission)***

**TOPICS:**

- LEGAL STANDARDS (burden of proof; deference to Commission)
- PCS LEGAL ISSUES (adequacy of analysis; exclusive license)
- TECHNICAL ISSUES (PCS; DARS; GPS; Fixed Satellite; Aviation; "Aggregation"; PRF & Modulation; Definitional)
- CONCLUSION

For details, see *Opposition to Petitions for Reconsideration* of XtremeSpectrum, Inc. (filed July 31, 2002).

## LEGAL STANDARDS

***Opponents' Claim:***

UWB has failed to meet its burden of proving it will not cause interference.

***XtremeSpectrum's Response:***

(1) Congress imposed the burden of proof on UWB opponents:

"Any person or party (other than the Commission) who opposes a new technology or service proposed to be permitted under this chapter shall have the burden to demonstrate that such proposal is inconsistent with the public interest." 47 U.S.C. 157(a).

(2) Taken as a whole, the record shows that UWB under the First R&O will not cause interference to other services.

***Opponents' Claim:***

The Commission set inappropriate rules for UWB.

***XtremeSpectrum's Response:***

The case law consistently gives the Commission's decisions great deference, especially on technical decisions, and all the more so in connection with new technologies.

(For case citations, see our *Opposition* at pages 7-10.)

## PCS LEGAL ISSUES

***Opponents' Claim:***

The Commission did not provide an adequate analysis of interference to PCS.

***XtremeSpectrum's Response:***

The Commission more than satisfied the standards set out in the case law.

(For case citations, see our *Opposition* at pages 10-13.)

***Opponents' Claim:***

The higher limit for indoor UWB is irrational: PCS needs more protection indoors, not less.

***XtremeSpectrum's Response:***

The indoor limit adequately protects PCS under all conditions. The lower outdoor (handheld) limit protects certain Government systems, and has nothing to do with PCS.

***Opponents' Claim:***

A PCS licensee's exclusive rights to its spectrum bar UWB operation.

***XtremeSpectrum's Response:***

- (1) The uncontroverted case law holds that even an "exclusive" license does not bar non-interfering use by other parties. *AT&T Wireless Services, Inc. v. FCC*, 270 F.3d 959, 962 (D.C. Cir. 2001).
- (2) A UWB device is allowed only out-of-band emissions at PCS frequencies, and at much lower levels than out-of-band emissions from other devices.
- (3) The PCS carriers bid on their spectrum knowing it was subject to intentional in-band Part 15 operation at much higher levels than UWB.

## TECHNICAL ISSUES

***Opponents' Claim:*** **PCS:** UWB limits are higher than PCS industry standards allow, and will interfere with PCS handsets.

***XtremeSpectrum's Response:*** The PCS industry standards are derived under ideal laboratory conditions. The Commission showed its rule are safe in a real-world environment.

***Opponents' Claim:*** **DARS:** UWB limits are too high in the DARS band, and will interfere with DARS receivers.

***XtremeSpectrum's Response:***

- (1) The numbers used by DARS proponents are wrong (unless the receiver is in orbit, or DARS used a pencil-beam antenna).
- (2) Much higher emissions are permitted from the neighboring 2400 MHz ISM (microwave oven) band.
- (3) DARS reception indoors (where the claimed risk of interference is greatest) will generally require either a terrestrial repeater or an outdoor antenna, either of which eliminates the claimed threat of interference from UWB.

***Opponents' Claim:*** **GPS:** UWB limits are too high in the GPS band.

***XtremeSpectrum's Response:*** The GPS-band limit for UWB is the lowest limit for any device anywhere in the Commission's Rules, the lowest value requested by the U.S. GPS Industry Council, and the lowest level susceptible to laboratory measurement.

***Opponents' Claim:***

**FIXED SATELLITE:** The UWB limits are too high to protect Fixed Satellite System receive dishes at 3.7-4.2 GHz

***XtremeSpectrum's Response:***

The Fixed Satellite industry offered no technical grounds for questioning the Commission's calculations. It improperly accounted for building attenuation, minimum satellite antenna elevation, and building blockage.

***Opponents' Claim:***

**AVIATION:** UWB communications devices should be limited to frequencies above 5.5 GHz, and emissions between 2.31 and 5.25 GHz should be severely curtailed, to protect various aviation systems.

***XtremeSpectrum's Response:***

All of the systems of concern were either thoroughly analyzed in the proceeding, and shown to be safe from UWB, or else lie below 3.1 GHz, and already have the protection requested. The aviation interests do not present any technical basis for reconsideration.

***Opponents' Claim:***

**"AGGREGATION":** Some petitioners still insist that the Commission reduce emissions levels to account for cumulative UWB interference.

***XtremeSpectrum's Response:***

- (1) Aggregation is the "urban myth" of this proceeding. Although UWB emissions do add in principle, they do not aggregate harmfully.
- (2) Nearby UWB devices share a common radio channel, and so cannot transmit at the same time. Even a dense deployment of devices cannot yield a dense deployment of operating devices.
- (3) Only the nearest UWB emitter matters, because signals fall off quickly with distance. *Ten* UWB devices at 10 meters distance produce less than 1% of the emissions from *one* emitter at 3 meters.\*

\* This realistically assumes propagation losses at  $1/R^2$  for the emitter 3 meters away, and  $1/R^4$  for the emitters 10 meters away.

***Opponents' Claim:***

**MODULATION:** MSSSI (1) says UWB systems with a high pulse rate are more interfering than those with a low PRF; and (2) criticizes XtremeSpectrum's approach as inadequately tested for interference.

***XtremeSpectrum's Response:***

MSSSI is wrong. The output of a properly-designed, high pulse rate system using XtremeSpectrum's approach is indistinguishable from low-level wideband noise, and is benign to the widest range of receivers. Other approaches are far more likely to produce interference-causing signals.

UWB systems are themselves potential victim receivers and should not be subject to unnecessary harm. High pulse rate systems present the least chance of harmful interference to other UWB systems.

***Opponents' Claim:***

**DEFINITIONAL:** MSSSI asks the Commission to amend the UWB definition so as to exclude devices (such as XtremeSpectrum's) that achieve wide bandwidths because of high data rates.

***XtremeSpectrum's Response:***

MSSSI's request has no reasoned support anywhere, not even in MSSSI's own Petition.

- The current rules enable a new technology capable of performance and applications that are impossible with existing narrowband technologies. Changing the definition to admit non-UWB systems may cause interference to the very systems the Commission intended to create.
- The U.S. marketplace needs stability to usher this exciting new technology into the marketplace. And U.S. stability is essential while other nations develop their own rules, as a constant benchmark against which other countries can develop globally consistent regulations.

*The UWB definition should be left unchanged.*

## CONCLUSION

- The rules in the First R&O achieve a safe, workable balance.
- The present rules fully protect all other spectrum users while enabling a commercially feasible UWB industry in the public interest.
- XtremeSpectrum has already announced and demonstrated working prototype chipsets that meet all current FCC requirements.
- The above petitions for reconsideration should be denied; no further notice is needed at this time. This nascent industry needs marketplace stability and certainty.
- The Commission should signal to the U.S. marketplace and the international community that its rules are firm.